

AVIATION

The Oldest American Aeronautical Magazine

SEPTEMBER 27, 1926

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Cross-Country in a Curtiss O-1 Falcon Observation Plane (Liberty) of the Air Corps

(c) Underwood & Underwood

VOLUME
XXI

SPECIAL FEATURES

NUMBER
13

A FLYING TOUR OF EUROPE—LESTER D. GARDNER
POWER PLANT ASPECTS OF THE NATIONAL AIR RACES
THE PROPOSED AIR REGULATIONS

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under Act of March 3, 1879.



Photo of *Lt. Cdr. G. T. Cuddeby's* Fokker which took the first three places in the Liberty Bell Trophy Race for bombing planes.

PACKARD—BOSS OF THE AIR

Packard-powered planes win Pernot Ship Race in Record Time—and make clean sweep—first, second, third—in Bomber Race

ONCE more has Packard added new laurels, and by its performance at the recent National Air Races, has earned its right to the title *Boss of the Air*.

The four-day all military Pernot Ship Race was won by Lt. G. T. Cuddeby of the Navy, flying a Boeing FB-1 plane, equipped with a 600 H.P. Packard Engine. The average time for this 120-mile race, over a 15-mile triangular course, was 180.491 miles per hour, a new world's record for standard passenger planes.

Lt. Cuddeby's and Packard's victory was made more remarkable by the fact that he started tenth, in a field of twelve, and finished second.

In the Liberty Bell Trophy Race for light bombing planes, then Huff-Daland L. B. Bombers, equipped with 800 H.P. Packard Engines, took first, second and third places in a field of six. Lt. L. M. Wolfe of the Army was the winner, with an average speed of 135.71 miles

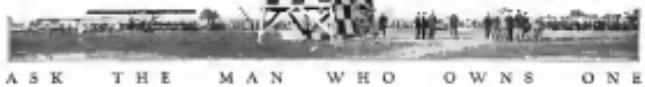
per hour for the 120-mile course. Second and third places were taken by Lt. Kenneth Walker and J. M. Davis, at speeds of 119.659 and 118.667 miles per hour.

The turn of the race for the bombers carrying a useful load of more than one ton, with a crew of two men whose combined weight must be 140 pounds or more. The victory, loaded for the race, weighed more than four tons—a remarkable demonstration of the performance and power of the Packard Engine.

Year by year Packard Aircraft Engines win new laurels such as these, and repeatedly demonstrate their power, speed and dependability under all conditions, for all types of planes.

Lt. Cuddeby rounding the fourth pole in the Pernot Ship Race.

PACKARD MOTOR CAR COMPANY
DETROIT MICHIGAN



ASK THE MAN WHO OWNS ONE

SEPTEMBER 27, 1926

AVIATION

Published every Monday

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3, 1879.



No man exacting service is required of the airplane thus in bombing operations over the Southern cotton fields and orchards. The illustration shows one of the famous Petrel Diving Planes produced by Huff-Daland Aero Corp., powered by the Wright Whirlwind 200 h.p. air-cooled engine equipped with two SCINTILLA AIRCRAFT MAGNETOS.

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*More Pilots Know More About
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now manufactured in America*

*That's why
More Pilots fly them!*

The Travel Air Commercial Station, shown here, is a propeller-powered model, a Wright Whirlwind 220 H.P. mounted engine.

Send for Bulletin No. 8

WRIGHT

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AVIATION

VOL. XXI

SEPTEMBER 27, 1926

No. 13

Time to Settle Down

TWO OF the three great national air meets of the year are now relegated to history and the third and last will shortly take place at Norfolk, Va. Because it is, of course, next to the Schneider Cup International Seaplane race, and the Commercial Airplane Reliability Tour and National Air Races which have already been held. The tour is drawing near, therefore, when the country's aeronautical men turn their settle back into the routine of straightforward business flying.

There are needs to be recognized at all points. In the first place there provide, of nothing else, a means whereby aviation people throughout the country can get together. This may be the most important and most important reason for holding air meets. The value of aeronautical people getting together and discussing each other's problems cannot be overestimated. It is one of the most important factors in progress. Secondly, the competitive element at an air meet is a great stimulant of progress. While this does not apply quite to the same extent in the case of the Schneider Cup races, where, at least as far as America is concerned, it is usual for the planes of one manufacturer only to represent the nation, there is no doubt that in the Schneider Cup race has an important effect upon international aviation progress.

In the two meets which have already been concluded, some very fine performances have been set up. The fact that eighteen of the twenty-five commercial airplanes which started in the Commercial Airplane Reliability Tour actually completed successfully the 2,500 miles of scheduled cross-country flying is an awful striking example of the development of the American commercial airplane. In the National Air Races approximately 154 entrants flew in cases of which, based on 1925 figures, 100,000 miles were flown annually. In addition, perhaps the most remarkable individual performance was that of Fred Hoyt who was the only man with a flight from Barreis, Calif., in an OX5 engined Travel Air in 31 hr. flying time. Furthermore the record overall plane speed of 390.465 mph. over a closed course set up by Lastoeard Cudlidge, UBN, flying a Boeing racing plane, was another performance indicative of progress and the excellence of American aircraft.

Each year the National Air Races prove to be much of their attraction for the general public. As a consequence, the rates are increased on this basis and, no doubt, there are grounds for such increments. It is difficult to note, however, that in many respects from the technical point of view, the rates each year bear out signs of greater progress being made. This is highly conceivable and should serve as some compensation, at least, to those men each year who's efforts and energies enable the staging of these annual events.

It is to be hoped and anticipated that the steady progress and unfoldment of the quiet period before

next year's aviation "sporting" season will bring out equally excellent signs of steady progress.

Japan to Foster Commercial Aviation

THAT THE Japanese Government is about to launch an aggressive plan for the development of commercial aviation is among the most interesting pieces of aeronautical news at this time. The colonization laws are an event greater significance when compared to those in the airtacks recently adopted by the Japanese representative of the Preliminary Disarmament Commission in Geneva where the question of the value of the commercial airplane in military service was brought up for consideration. While agreeing that there is a possible potential military value in the commercial airplane, it will be recalled that the report of the preliminary commission stipulated that commercial aviation should be paralleled, in developing free, its military value being considered only in the event of number steps being taken towards actual disarmament.

The new Japanese budget provides for the expenditure of 22,000,000 yen, which is approximately \$41,000,000, for the development of commercial aviation over a period of seven years. The money is to be spent in developing air navigation facilities and in establishing a private airline to a direct grant or on a mileage basis for an air mail route between Tokyo and Osaka and Osaka and Durra. It is of interest to note that the distance between Tokyo and Osaka is approximately 220 miles and that between Osaka and Durra, 850 miles. Moreover, the latter route involves the passage over a considerable stretch of water, the Korea Strait and a corner of the Yellow Sea. It is a very long and, it would seem, difficult route and no information is given as to the steps to be made or whether seaplane or land machines are to be used.

The significance of the Japanese commercial proposals may be realized by a comparison, for example, with the British budget for the aviation in the Air Ministry for 1927 which is estimated to amount to approximately \$2,301,000, which, at this rate, would make an expenditure of over \$14,000,000 for seven years, according to closure to the estimate. Of the amounts for the present year, about \$600,000 is for colony payments to the Imperial Airways European Line and the proposed Egypt to India line to start in January, 1927.

Thus, it will be seen that Japan is entering wholeheartedly into the development of commercial aviation in the proposed two lines which are to be concentrated. These will form a sound trunk air line across the islands which constitute Japan and will link the country with China and its colonial possessions on the Asiatic continent. Coming, as it does, as the first serious indication of commercial aviation development in Japan, the moral impression can only be regarded as commendably significant of the attitude adopted by Japan in aeronautical development problems.

A Flying Tour of Europe

By LESTER D. GARDNER

(THIRD PART)

IN THE two previous articles the air lines of Northern and Eastern Europe have been given a preliminary if sketchy outline. The trip, covering as it does a journey of approximately 25,000 miles would take four weeks spent in one at least and in the third of the series the southern European air routes will be given a short study.

Our Governor By Letter

Southernmost Europe has not had a great aerial development except as the Iberian air line has made this part of the continent famous for the operation of one of the largest and most successful of all the air routes of the world. To give the history of this development would require more space than is available in this sheet, but here the principal events may be summarized. All the early flying was done by mail contractors, but the present situation is that the Transiberian, the southernmost bank of France, Spain has control over the famous walled city of Gerona, also of Pampanga, the most southerly city in France. It then ensues the leaders and passengers are given the great treat of a tour of the Pyrenees, the picturesque mountain range of northern Spain. The flight is conducted along the rugged coast of the Bay of Biscay, the Atlantic and the Mediterranean. At Almeria, the line divides into two paths, one going to Ceuta across the Mediterranean and the other to Africa by way of Gibraltar with the railroads Almeria and the Ferrocarril de Ceuta which rappels peaks as the high spots of the flight, before Gibraltar is reached. Flying over the end of date fortresses the mail contractor operating on the route will be able to offer the service of aircraft here and as the only methods of defense since this new and implement has been

available the rock that has stood for centuries as the impregnable fortress that protected the gateway of the Mediterranean has become more of an historical monument than a strategic fortress.

From Gibraltar the flight continues east through the Straits of Gibraltar. To the north, the southern coast of Spain can be seen extending for many miles seawards along the Mediterranean and when the Atlantic is reached the shoreline northwest for fifty miles can be traced in the clear sea of the southern route.

To the south, at Almeria, the Low and High Atlas range of mountains may be seen with many capped peaks in the distance. A turn to the south brings the Atlantic road line of Africa into view and soon the first stop is made at Melilla, the international city.

Arrival in Africa

With the landing in Africa, the first noticeable change in the native helpers is very noticeable changes who serve the mailmen under the direction of the Iberian officials. The Republic XIV, with its open cockpit carrying two passengers, has now come into use, but even more difficult flying conditions are met in the Spanish mountains. The airport at Tangier is not planned for the accommodation of passengers but is merely a station on an air line that is most interested in the transportation of mail and goods than passengers, although on planes are usually filled on every top. Later, it is planned to have alloted terminals at each place of landing. The mail contractor operating on the route will be able to offer the service of aircraft here and as the only methods of defense since this new and implement has been



Cadiz, as seen from the Iberian plane en route to Casablanca



Loire Goliath (Loire et Cie) ready to leave Oran, Africa for Atlantic Stein

available becomes so hot that the robes wear a hood of leaves with holes cut for the mouth and eyes to protect them from the sun.

After a pause, the journey is continued to Rabat on the Marrakech coast. Here, on the first from the several coastal ports, the mail contractor flies to the Spanish frontier station of which is the port of Melilla. These stations along the coast have been built around a nucleus of old and shabby, but still comfortable houses, and the modern streets and European buildings give a strongly contrasting appearance to them. After a short stop at Rabat to leave the sand and smoke, a short flight strips the desert road to an oasis of oases. Elvas, in the interior of Africa, may have been a small oasis in ancient times and the traveler is glad to get to a quiet hotel for a change. But the remarkable thing that was noted after this long air trip to Europe was that along the opportunity and time given to make a short distance, there was no sense of weariness, only the natural fatigue of traveling in the open air.

Conditions in the rear areas of the Iberian line from France provide also a contrast in native culture as well as in the starting point for the continuation of the air line. Dakar about 1920 orders further south on the African coast. The planes leave the city enroute to Casablanca (for the planes from Tangier and Marrakech). Casablanca itself is a very modern French city and is a most delightful place to visit. Casablanca is the capital of Morocco and the chief port of the country. While there the Sultan of Morocco left for France and it was a rare opportunity to see the native nobility gathered for the first voyage outside his employ of the ruler of this north African country.

The Site of the Rifian Fury

After a day's rest, the air line was continued across the northern part of Africa to Oran in the Mediterranean. This flight of 470 miles is the most interesting section of the entire route. It is the most interesting country on the route to cover the cities of Fox, where a landing is made, Melilla and Granada. The mountains of the Atlas range are around and much of the terrain over which there have been much conflict with the Rifis can be seen. This country is not well suited for air flying and it is clearly apparent why the air forces of France and the air militia of the French army is interested in the Rifians. The cities from the air of the Moroccan cities with their characteristic palaces and mosques, all white,

and surrounded with leafy gardens agree with one of the main interesting pictures that one can take on coming to the coast after passing the desert well in the interior, look out on among the sand interesting paintings that one can take.

Arriving at Oran, the next flight is to be on our return trip. But the weather will not be in our favor, taken a short trip by train from Oran to Algiers, the capital of the French colony, and soon is on air line connected Algiers with Marrakech, Morocco. It is not morning or noon. The trip across the Mediterranean to Almeria is like all air air routes, a nonstop experience especially in a closed cabin with small windows. Such trips are great time savers but unless a coast line is visible there is little interest in the air review. The trip across the Atlantic is not so difficult as during the day hours, whereas the long travel review. At Almeria a change is made to a land plane and the Spanish flight director whose name is reported in the severe winter. Reporting on my trip has a great advantage, but it gives an opportunity to us much of the months, who are overwhelmed on the first flight. These are those we are using views to see them so one trip will not be so tiresome to the traveler who enjoys viewing beautiful scenery and educational interests.

One of the Largest Fields in France

At Perpignan, ahead of entering to Toulouse, the air line proceeds to Montpellier, France. This is another and seventh mile flight along the shores of southern France is most attractive as the whole feature is over a coast at great beauty dotted with numerous cities and fishing villages. Seeing Montpellier one of the largest sheep fields in France is passed. It is in the valley running east of Llobes with the river of the same name. The valley is a deep and narrow plain that looks miles across and as level as a table. At Montpellier, a small field is situated on the Iberian line and the Air Union that has started a service five years ago.

Before leaving the Iberian trip which is of course one of the most interesting in the world, and before it can be treated in more complete manner as it is hopefully will be possible at a later time, it should be noted that here is one of the main advantages air routes in the world. It covers a very difficult route that takes a very long time to travel by any other kind of transportation and it renders a very and service not only to France but to the African colonial territories France is governing. It has made the transportation of men and goods an easy process and it generally considered to be one of the best that has a great opportunity for future

commercial development. It is planned to extend this service, when possible, to South America, either by boat or by air as experience. With these, the traffic that will become available will be so great that it may become one of the greatest factors in the future of the world, if it does not hold that distinction now.

The new *Air Union* line from Marseilles to Paris, serves a very great need. The *Europo*, now, is connected with Paris and therefore can leave the French capital in the morning and be at Paris by any one of the beautiful shores cities in the afternoon. The flight has a greater variety than there gives no opportunity of seeing. Arriving at the French coast, the passengers for a period, as well as the passengers on the *Europo*, have an audience over by with the *Balair* are less than three to two hundred. The distance from Marseilles to Paris is 482 miles and it is flown by the *Balair* Supply in five hours and a half. With the other *Air Union* lines to London, the travelling time from England to the Mediterranean is greatly shortened.

The Balair Coast from a Seaplane

Italy has been slower in taking to air transport than the European countries of Northern Europe although there has been a line in operation down the River Po from Turin to Trieste for several years. This year a determined effort is being made to utilize air transport to a greater extent and the line from Genoa down the coast to Palermo is likely to be one of the most popular. Italy is planning to acquire a line from Trieste on the basis of 1925 and the *Cavallino Rampante*. No one who ever flies the *Daimler* will complain that there will ever again say that air trips along routes, that have not until recently, not had the same pleasure that can be had. To fly along the Italian Riviera and past Pisa with its lessening towns, and then the islands of Elba and Monte Carlo with a landing on the famous River Tiber near Rome, certainly seems heavenly, historical interest, as well as the beauty



The N2 Seaplane in Range

of the travel. This trip that is flown in the Italian South American Navigation Airline, which is controlled under U.S.A. is one that Marseilles has been endeavoring to the limit. It gives visitors to Italy an opportunity of seeing a part of the country that has been almost inaccessible hitherto.

At Rome, while not an air line terminating the landing in the Tiber, which is one of those a notable resort about twenty miles from the city, an operation was offered to fly over the Eternal City in both a *Vespa* plane and a *Balair* biplane. The first flight, one with Major Sennior of the American Air Corps, and the other through the efforts of the *Italair* Air Corp were two of the most experiences of the air trip. To see from the air, at one sweep of the eye, the Colosseum,



The N2, *Admiral* airship in which Mr. Gostling flew over Rome

the Forum, St. Peter's and the Vatican, the Victor Emmanuel II monument and the landmarks of other interesting buildings of the city can easily catch the mind of the passenger than any other cockpit view can give. At a later time the two intervening flights will be described more in detail. They are mentioned here only to express the appreciation that is due for the extra-dinary opportunity that was made available for this air tourist.

Naples—The Beauty Spot of the World

Continuing from Ostia, South, a short flight of an hour and a half along the peninsula, *Balair* must bring the Bay of Naples into view. And when the tourist tries to describe the beauty of the beauty spot of the world he fails him of stock of superlative words to give any adequate idea of the sight. With Vesuvius belching its cloud smoke, Pompeii and Herculaneum at the foot of the mountain, the Gulf of Naples, the Tyrrhenian Sea, the islands of Procida, and Ischia, Naples spreading sprawling upon the slopes of the terrace—such a picture could do justice to the view. For many years the fame of this has been a legend spread to all parts of the world. "See Naples and die" has become a wise saying. With the advent of the S.A.N.A. we like that expression may be changed to "See Naples by air and live."

Two and a Half Hours over Sea

Usually less attention is given to the termination of the flight across the Mediterranean to Palermo, the largest city on Sicily. The air trip in the twin engined *Dornier* *Wol* takes about two hours and a half and to those who have enjoyed the Bay of Naples, the name of Palermo will have an equally impressive

character. Quite different, but also unique among the beauty spots of the world, the terminus of this wonderfully unique air line can easily catch the mind of the passenger than any other cockpit view can give. At a later time the two intervening flights will be described more in detail. They are mentioned here only to express the appreciation that is due for the extra-dinary opportunity that was made available for this air tourist.

Fusion of French Air Companies Completed

A fusion of the *Air France*, one of the largest of the French air companies and the *Aero-Nord*, a smaller French company, operating seaplanes over the Mediterranean, *L'Air* *de* *Afrique*, *Comte*, has recently been completed. The *Aero-Nord* accepted the stock of the latter organization at its present value, or more.

Under the new organization, the *Aero-Ponton-Marseille* and the fusion of the two companies will permit the carrying out of plans for a single line between London-Paris-Lyon-Marseille-Agadir and Tunis. Flying time from London to Tunis over the projected route is estimated at 4 hr., as compared with a train and boat schedule of 4 days at the present time.

Steps will be taken at once to transfer the French base of the *Aero-Nord* from Antibes to Marseille, that adding a direct link, Marseille-Agadir, to the *Air Union* route.



St. Peter's and the Vatican as seen from the ship N2

The French Duration Record

World records are being broken so fast that it is hard to keep track of them. The Armandt brothers had hardly left on their return flight from the French Gulf back to Paris, when the record was broken by the British team of Captain and Lieutenant Doherty as pilot and co-pilot respectively. These two pilots made a non-stop flight from Paris to Ouchak, Siberia, July 31-Aug. 1, covering 4700 kilometers in 28 hr., and beating the Armandt brothers' performance by about 400 kilometers.

The plane piloted by Captain Oliver was a standard Fairey Arrow biplane with the Hispano-Suiza engine, having a maximum speed of 190 km. per hour. The only changes in the plane were the addition of two square meters to the wing area, to fit in with the dual control, to slightly increase the tail area and to add supplementary tanks which increased the fuel capacity to 2000 liters. The power plant was a 300-hp. 12-cylinder V-type Hispano-Suiza engine driving a three-bladed propeller.

The plane weighed, fully loaded, 2000 kilograms, of which 2000 kilograms represented the fuel load. With this large load, carried only by 15-gauge steel at Wingman, it is hardly surprising that the take-off at the place should have been very long. Captain Oliver made these start-hitches finally succeeded in getting the plane clear of the ground. He was flying at 1000 m. above sea level. During his flight he was in touch with the French Air Force, announcing his performance, but actually earned himself for not having done better.

Growth of Commercial Aviation in Italy

The first commercial air line in Italy was inaugurated at Turin on April 1, 1936, by the S.I.R.A. (Società Italiana di R.S.A.), a joint operation between Trieste and Turin, with stops at Venosa and Pavia. Up to June 1 the company made twenty flights, every other day, but on that date daily flights were instituted. The S.I.R.A. operates C.N.T.-50, three-engine seaplanes, built in the shipyards of the Comitati Co., at Monfalcone, Italy. The number of planes has been increased from four to eight.

During the first two weeks of April, the first fortnight of operations, 35 trips were made (16 Trieste-Turin and 8 return), and 55 passengers were carried in both directions. A total of 366 kg. of mail and 125 kg. of mail were carried. From the 19th to the 30th of April, 15 trips were made, 61 passengers carried and 125 kg. of mail and 12 kg. of mail were transported.

The Government has granted the S.I.R.A. both passenger and mail contracts. The mileage subsidy is figured at 31.54 lire per each kilometer of aerial flight and for a maximum of

220,000 lire yearly. Since a subsidy is equal to 50 per cent of the cost for a kilometer of flight, which the Government and the private companies have agreed to pay as 50 lire per kilometer. The subsidized trip, Trieste-Venice-Pavia-Taranto, is considered 515 km., since, in fact, no such trip, the company receives a subsidy totaling 100 lire.

The subsidy for transportation of mail has been fixed at 50,000 lire yearly, for which the company has agreed to move a quantity of mail out to exceed 200,000 kg. a year. For each kilometer traveled at 50 lire per kilometer, a quantity of 200 kg. will be paid for each kilogram of mail sent by air and 25 lire for each kilogram of foreign mail.

In addition to the foregoing subsidies, the Government has granted to the company the concession of customs duty, commercial tax, and sales tax, providing and introducing concessions for the subsidized trip Trieste-Turin and return, as well as other advantages of minor importance, such as stamp taxes, revenue-free flights.

The Società Aeronautica di Navigazione d'Africa was founded for the operation of the commercial line Rome-Geneva-Bordighera (Ostia), but pending a full agreement with the Spanish Government, the company has started an air route from Rome to Ostia, near Rome, thence to Naples and Palermo and Sicily. The company has three Dornier Wal seaplanes built at Merano di Pisa. Each seaplane has two Daimler-Benz engines of 280 hp. and a cabin accommodating 18 passengers.

In consideration of the longer route covered for the line, Dornier Ben-Dornier, the Government has granted this company a higher subsidy than that granted to the S.I.R.A., 50 lire being paid for each kilometer of aerial flight during the first four years of operation. During the following three years it will be paid for each kilometer of aerial flight 25 lire, and for each kilogram of 12 lire per kilometer. The average subsidy is figured at 50 lire each of the operations-and-mail price, which has been settled upon at 30 lire per kilometer of flight. The route is considered to be 1650 km. long. It is estimated that in Rome there will be 1000 lire per kilometer of flight. The subsidy will be increased by the amount of 440,000 lire yearly.

The subsidy for the transportation of mail has been fixed at 200,000 lire yearly, for which the company has agreed to cover 500 kg. of mail quarterly, or 10,000 kg. yearly. Mail is carried in excess of that figure will be paid for at the rate of 12 lire per kilogram for domestic mail and 25 lire per kilogram for foreign mail.

For the transportation of officers and the company employees, the subsidy is a reduction of 50 lire out of the mail and mail price of the ticket. A reduction of 15 per cent is granted to subsidized war veterans and to members of non-military and flying associations.



The Dornier Wal landing on the Tiber near Rome

Power Plant Aspects of the National Air Races

Advent of Air-Cooled Pursuit Planes Outstanding Development of the Past Year

By COMDR. E. E. WILSON, U.S.N.
Chief, Power Plant Section, Bureau of Aeronautics

FOR THE third season of a power plant engineer, the National Air Races have a number of interesting aspects. At the Annual Meeting of the Society of Automotive Engineers held the week before the races, it was decided that the aircraft engine had abandoned the defensive role and taken the offensive. The National Air Races confirmed this statement.

This was particularly striking in the case of commercial airplanes. Just as the Ford Reliability Tour brought out and demonstrated the superiority of Wright Whirlwind "J" engines, so did the Standard Av. Race emphasize the value of the Pratt & Whitney "R-1830" configuration of aircraft engines. So far as the J-6 Whirlwind engine was most interesting. In Event No. 15, the Transport Race, the jumbo carried a combat load of 1650 lb. and emerged 121.25 miles over the closed course. In the same race, the Ford Verville Aerster, with a Wright Whirlwind engine, carried a combat load of 1000 lb. at a speed of 129.87 mph. The Ford Av. Transport, with the Pratt & Whitney engine, carried a combat load of 1000 lb. and 111.007 miles. It is interesting that this machine was redesigned to take off with 1000 lb. more combat load, but that the condition of the field made this undesirable.

We have accomplished in this race two different types of commercial aircraft. The Wright-Billings and the Verville Aerster are small planes capable of carrying a heavy payload at a low speed. Their characteristics are such as to indicate their suitability for carrying passengers and express or freight. They are also adapted to passenger service over routes having numerous landing places.

The Ford Av. Transport is a fine example of the multi-engined type capable of carrying very heavy loads at a good speed and particularly adapted to carrying passengers over routes where landing fields are few and far between. The average speed of this machine was considerably in excess of



Comdr. E. E. Wilson, U.S.N., Chief, Power Plant Section, Bureau of Aeronautics.

commercial planes in the Trans. Av. race which was flown with 600 lb. of combat load at 121.25 mph. in Event No. 14, the light Commercial Race.

These single-engined 280-hp. aircrafted seaplanes are good examples of very useful machines designed about compactly low-powered air-cooled engines. Their performance



The Navy Curtiss Hawk biplane equipped with the Pratt and Whitney Wasp air-cooled engine

and characteristics compare most favorably with many of the last models of 600 hp. water-cooled installations. From an aeronautical engineering viewpoint, the engine is a very economical load on the maximum possible power output. Certainly the Bellanca, the Antonov, and the Travel Air will withdraw engines from their requirements.

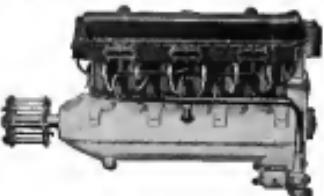
The Value of the 200 hp. Class

The three-engined commercial installation, as exemplified by the Fokker Air Transport and the Fokker Trimotor, are doing a great deal to popularize passenger transportation. The striking success of the P.R.F.P.'s Philadelphia-Wilmington line, which has recently been extended to Norfolk, Virginia, indicates the possibilities of multi-engined planes in well selected routes. The three-engined airplane appears to the public to have more in store, yet it is apparent that the future of engine installation. One American 200 hp. air-cooled engine is rapidly establishing a record of dependability and durability which will help continue confidence in passenger transport. The 200 hp. size of radial is a most useful one and its wide popularity in commercial airplanes is well deserved. Air-cooled engines in the 200 hp. class seem to have established themselves. In the "T" series of Travel Airs, three of these planes were taken by water-cooled engines, but the Wright Apache with a Pratt & Whitney Wasp engine, flown by Least. C. C. Chapman, put up a performance which was surpassing even to many people who had little familiarity with the development. Absolute safety which performed surprisingly well was the record of the Apache, as stated in "Curious 'T' 3" in the *International Aeromarine* of the Army Air Corps. Unfortunately, both of these engines were condemned, along with four other contestants, so that the speed developed by them do not appear in the official figures. However, one could gather from the bulletin board that the air-cooled Liberty averaged 202.5 m.p.h. in pick around the closed course at the first grand meeting at the New York State Fair.

On the first leg of the race, the Apache did 172 m.p.h. There has been considerable skepticism as to the ability of air-cooled radials to maintain high cruise speeds. Let us be skeptical when the Apache finished the race, having been flying 2270 m.p.h. During the latter half of the race, the

Apache's engine was turning 200 rpm. less than during the first half. The indications are that the engine was not over heated, and we may well wonder if this is not the particular type of work placed upon the motor.

When compared with the record of 160-165 m.p.h. developed by Lieutenant Godfrey's Fokker Flying Falcon, the speed of the two-stroke radials installed is particularly interesting if it is remembered that Godfrey's Fokker 2A-1500 engine was driving propellers with a compression ratio of 7.65 to 1, while the air-cooled engines were using 9.75 to 1 compression ratios. It is understood that the Curtiss V-1400 engine in



The Pratt & Whitney engine QH-8 by J. of the type with which Lieutenant Godfrey's Flying Falcon was fitted. The plane was its present plane rate of 160-165 m.p.h.

Lemontine Elliott's P-2, which took second place with 172 m.p.h., was likewise a high compression engine. The Pratt & Whitney Wasp was a stark engine. Its speed was to be built, and it was never forced compression with no external equipment except the fixed iron American-built Bimotus magnetos. In the light of these details, the performance of the aircraft seems to indicate that Wasp engines are not so disappointing. During the S.A.A. Associate Meeting it was stated that the air-cooled engine was challenging the water-cooled engine even in the present field. The results of this race indicate that this is making a very successful bid for a crown.

To all power plant engineers, the demonstration of dependence was most impressive. Fourteen planes entered the "Presto" race, and three, the full weight class, were over twice the size of those with which the water-cooled radials were in excess of the normal service output. There were no indications of engine trouble of any kind, and one engine trouble would have been very serious under the conditions which obtained. As an additional example of the general dependability of American aircraft engines, the overall record should be a word of comment. Tom G. Gandy, the champion aviator at McCook Field, one month before the All-American Airshow at Akron, Ohio, had given a guarantee of the performances of their air-cooled Liberties, and the Pratt & Whitney Aircraft Company has had great satisfaction to the number of their Miles, particularly since the company was but thirteen months old at the time of the race.

Where above tends to draw attention more to the low level aerodynamic characteristics of our airplanes. It is a great satisfaction to the manufacturer of aircraft since these are to a certain extent independent of the performance of the flightless aircraft. It follows, on, however, to accept a more or less conservative with the results of our research and to our own advantage as to what our service lives do at altitude. Since most aircraft engines, in virtue of induction in power plant models, increase in the number of hours, increased performance at altitude, and, of course, assumed, that modern air cooled engines do not have to rely so much to air-cooled engines, regular research at sea level is recommended. The result of the air cooled radial into the racing field as a power unit member of the water-cooled engine is, then, one of the outstanding developments of the past year.



Captain C. C. Chapman and his Apache with the Wasp engine

Comments on the Races

Canadian Planes Typify Excellence of Independent Canadian Design

ONE OF the salient features of the meet was the almost complete absence of Douglas, Standard or other well known American manufacturers. This was particularly noticeable in any of the civilian events and only one or two appeared at the field. Thirty years ago the National Air Races were probably meeting but these old planes and so far removed the most advanced progress which has been made in the types of aircraft materialization in use. The one exception was the National Guard Rate in which winning the Junior and Senior races. This is the case of the Canadian team, and it shows more clearly that the volunteers who are not in the amateur flying practice should be forced to fly such antiquated planes.

Military Construction

Another point was the unusual adoption of live weight and training by the commercial manufacturers. Certainly all planes manufactured between 1920 and now make place at heavy drops all the planes entered in the civilian races had metal fuselages. There were, however, no civilian metal wings with the exception of the Fokker three-engine. The latest Army bombers we visited used wing bags but these were not covered with skin. It is hoped that next year will see more metal covered gliders in the civilian races.

There is a great variety of landing gear and there does appear to be a trend toward wheels which are especially designed so that the right side comes to be running into river. There were even front sprung planes with no shock absorbers at all and that around speculation as to the real need for all the effort which has been put into landing gear.

The number of planes in attendance at the meet was disappointing. Although there was more prize money, there were not many more planes than at Midfield Field last year and the number fell short of the Mid-West air meet. The reason for this is not clear, but it is believed to be a sign of the events not particularly air. "Hill's half acre" was the name given to the site of the race. The field was the best the West has to offer but there are not so many planes on the Atlantic as there are in the Mid-West. The award will apply to the West as well as to the East. Plans here began to realize that no stock job can use any of the

spotted aircraft. Trained up planes or planes designed especially for one event have been winning the big prize money for the past couple of years. As a result, the pilots who planes which can be used for many purposes work do not care to wear out these engines in a race trials they cannot win. True private owners or even professionals who are willing to pay the All-American unless they were pretty certain of winning prize money.

A Lightplane Over the Alleghenies

While on the subject of flying to the west, congratulations are to be extended to Fred Hoyt in his opening trip across the continent in an H-3 Travel Air. To fly 3,600 miles and return in order to attend an air meet is quite a feat and Hoyt was glad that Hoyt was the "Get-to-the-West" pilot. The trip was made in 10 days, starting from the coast and ending at Lake Louise in the Little Rockies. Partly planned with the Wright Aerobatics 26 hp engine, Less five hours beyond to Photo-diplom by way of Alpena and Washington. The weather was rather bad and several long machine were held up, both flights will do much to prove the possibilities of lightplanes than any account of engine. Harry Dahl's eight trips between the coast and the West were a good example. Young Hoyt and his wife Freda-Vivian, with a Wisconsin State University degree, are a pleasure. His son became interested in flying and, as the only private owner, he certainly put up a good showing in the races which he entered.

The racing of the states was done by Edna A. Foster and Chester E. Parker, directors of flying at the Indianapolis Motor Speedway. The speedway organization leased their electric timer which is the most accurate in the world, returning to one quarter at 1/100 of a sec. The Indiana Coliseum and Monroe City, Ind., through, Mr. J. K. Keeler, an engineer and a man of great knowledge, were able to calculate this into seconds per hour. When ten to fifteen planes are started and they reach at the bottom the timing is an easy matter.

The races were arranged this year with a view of encouraging the novitiate at civilian planes. The field was under civilian management and comparatively little of the prize money went to the military races. As a result, every civilian



One of the Heff-Dolan Dusters used in conducting the hill races and other meet parts throughout the country. These planes operate very close to the ground and use Wright Whirlwind 200 hp. air-cooled engines exclusively. One of these machines was on show during the Air Races

manufacturers of importance was represented. Waco, Travel Air, Standard, Alexander, Bell-McVerde, Ford all had planes to the meet, most of them being entered by the manufacturing company or its representatives. The most well known representative of American aerial sports, Pidder and Sabatky had planes at the field but they took no part in the races. The Army Air Corps brought all of its representatives to fly for the veterans' meet. Observers, judges and racing planes raced around the course and no outsider would have missed a comprehensive idea of the various military types of aircraft had it stayed throughout the meet. The only type of airplane which was not really fully represented was the air transport plane. The Ford and the Wright-Delco were the only two planes which could possibly be considered which were not in any way of the event. None of the planes in use on the site and base were represented. There were no Carrier Dusters nor Douglas Transport nor any of the planes which figured in the air mail competition. Certain planes such as the Travel Air and Bell-McVerde were competing but those planes and the Ryan biplane, unfortunately, was not in use, was damaged and the engine, unfortunately, was not repaired. It is to be anticipated that some of the big government manufacturers except Chance-Vought and any of their latest types of monoplane aircraft entered in the civilian races. The air line operators could hardly afford to enter their planes and the manufacturers did not have any available for show purposes.

The Wind Starts

The field arrangements were excellent. The planes flew almost in front of the crowd and turned the planes at about the center of the space reserved for the spectators. The bases were well placed but not too obtrusive. Good refreshments were provided for and it had not been for the inclement rains the visitors would have been thoroughly comfortable. As it was, the ground was extremely muddy and the forecasted winds which they promised and the early indication was that a week was police too long for us to meet. Weatherwise the events over two weeks-ends probably brought in more money, but the meet nevertheless took the pep out of a show which in many, spontaneous and peeks, opened and closed up and down.

A Plea for the Two-Seater Sport Plane

Many people interviewed with regret that there were not more entries in the \$500 or so class for two-seater sport planes and expressed the hope that next year's races would bring out good examples of this particular model type. The proposed two off-the-line biplane, featuring the latest advances of speed and after much wild flying the biplane safely to land. Classes performed during the day meetings and a real effort was made to keep the crowd around and interested.

The new, however, seemed to get no greater than from the men of the National Aero Club who were present for flying and starting. When three planes would fire from the sides with their propellers revolving, the crowd was greatly excited and with great reason for the maneuvering and evolutions.



The Fokker Universal engine which is exhibited at the democratic Rating of the Army Aeromobile Division at Philadelphia. The plane drove the engine during flight using it as an air pump.

None of the planes were truly extraordinary. The paragraphs preceding was held after the other events of each day and, as far as the racing planes were concerned, the same old fashioned biplane which the crowd had seen last week was to dominate as ever. The most interesting was the biplane built out of a automobile frame.

Plans were given out very freely and in various ways all over the field after the more men over they had a good chance of obtaining the plans. All the venture planes was laid up right in front of the crowd so that they could study them and copy them. The planes which were built out of automobile frames which they removed and the early indication was that a week was police too long for us to meet. Weatherwise the events over two weeks-ends probably brought in more money, but the meet nevertheless took the pep out of a show which in many, spontaneous and peeks, opened and closed up and down.

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An Model Aviator Field—One of the new Fokker Universals (Wright Whirlwind).

The lightplanes were very graciously the only group sparing costs of the meet. The Kinner Biplane Co. had built two planes especially for the meet and the Heath Company also would probably not have been able to build two planes for the meet. Three of the Fokker Dart planes have already been built and though they have a high speed rating they are still not quite like cross-country long distance jobs. There are two of the lightplanes which have been built for the meet and one of them is built for racing. With certain fixed features to the size of the biplane, the lightplanes are developing into a racing class similar to the racing motor boats or speedway motor-boats. No six foot men could have crowded himself into any of the planes and they all need a sizable pilot on the stick.

Private records at the National Air meets it would seem on the basis of the present meet, are not very good but not very remarkable in the spectrum. It would be remarkable if the lightplanes developed into a racing craft which, flying around a short course, would offer an interesting and exciting spectacle for the spectators. One of the outstanding results of the meet was proof that a good American lightplane engine had been produced in the Wright Marmon.

Excellence in Aviation Design

One of the interesting things in the meet was the absence of still another monoplane. The military and civil types in this country are developed to the extreme limit and it is hard to make any even comparison. The last war could not be proved at this year's meet without noticing that there was very red shingle racing in certain designs. The greater freedom under which the civilian designers were also in evidence. Instances of lightplanes, these were found to be the best in the meet, were not at all what were military. The only all-metal planes of record were the former. In the matter of fuses, landing gear and engine mounts, etc., there was much room room among the civilian planes, thus making the military and racing an equal amount of ingenuity. When it comes to performance there were few comparisons possible in the military planes, very few of higher speeds than the Curtiss JN-4s, the Boeing, the Martin, the Ryan, and the Stinson plane equipped with a Wright Whirlwind engine and the Charles plane equipped with the same engine generally surpassed it at performance. Considerations however, are not the same as the Navy machines were built for catapulting and for deck landing and must have features of safety and reliability in addition to performance as the Wright, Bellanca, Bell-McVerde, or the Ryan. The Boeing, the Martin, the Ryan and the Curtiss plane, using Gandy, and the Arceo observation planes which made apparently the same speed as one third the hangarage. It was however, said he who said that the United States is developing a group of naval aviators who are producing planes which, in their fields, are the equal of planes designed for military purposes.

Philadelphia, Pa.—Norfolk, Va. Air Mail

Promoted General Aviation on Sept. 9 accepted 45 day passes tendered by the Philadelphia Rapid Transit Corp. for an air-superiority of control air mail service between Philadelphia and Norfolk, and manufacturers volunteered to help the smaller service route. Philadelphia will be the starting point for the mail to be carried by the way of Washington. Both are returnable Sept. 25 with a view to increasing the postal delivery service by Oct. 3.

The Philadelphia Rapid Transit Corporation, under Milton Mengering, began passenger car service between Philadelphia and Norfolk on Sept. 13 and it is understood, has invited several local firms to help in the work.

The proposed service is expected to prove of material benefit to mail route residents, using a full day time in the delivery of cargo manifests to New England shipping companies. A similar service in case will, of course, be made on other New England roads.

The person who will pilot Sturk is assisted with the ownership of the plane between New York and Chicago. Mail between Norfolk in the afternoon would be delivered in Chicago, Milwaukee, St. Paul, Minneapolis, St. Louis, Kansas City and intermediate cities the following morning.

During seven weeks of steady operation, from June 1 to July 26, the Varney Air Mail has completed every flight except one, and without accident. The one and only accident is a minor fault, and this the crew and only flying leader since they installed Whirlwind engines, their



Ben Warter inspecting the Whirlwind engine in a used air mail plane at Spokane, Wash.

Stallion mail planes, was due to a gasoline line failure.

In seven weeks of operation, the five Whirlwinds have piled up 1,000 hours of flying time, and the new engines have given the slightest sign of trouble. The first flight of the new Whirlwind mail plane, which cost \$10,000, was made on June 26 with 20.5 gal per hr., and, in the last July working only needed 12.4 gal per hr. Most flights were completed with an average consumption of 20 miles per gal. The oil consumption varies from 10 to 22 gal per hr. The oil is filtered by a filter and 1 gal of fresh oil put in the tank, it is very seldom necessary to add oil on during the twelve hour period.

The instant round trip jet made by the Varney Air Mail over the Boise, Idaho, to Elko, Nev., route, made on June 9 by Eddie Franklin, Lewis and Clarence Price. Their total flying time on the route was 100 hr. 16 min.

The conference with the Post Office Department being carried out, makes a speed of 125 mph a truly remarkable. The distance from Boise to Elko is 375 miles, miles over high desert country, with two mountain ranges rising to the altitude of 10,000 to 12,000 ft., and periodically crossed with snow. The average speed at 125 mph gives a flying time of 100 hr. 16 min. The field of Boise is 2,000 ft. above sea level and ends at the base of another range of mountains. The field at Elko is 5,000 ft. above sea level.

The record was made by the Varney Air Mail, the mail, the planes, the pilots, the mechanics, the maintenance, the public, the Sturk planes and, finally, the Whirlwind engine.

The Bureau of Aircraft Regulation has issued an order to require all flying satisfactory Wright Whirlwind J-4 engine performance. The Naval Reserve Unit at Sparrows Point, Md., has now completed over 400 hr. flying with a Wright J-4 engine. During the last 100 hr. of operation this engine has performed even more satisfactorily than before. The U.S. Naval Reserve Air Unit at Rockaway Beach, N. Y., has been flying the engine for a couple of months, having a maximum speed of 260, 270 and 280 hr., respectively, without a forced landing or except minor difficulties. The results obtained at Sparrows Point Reserve Station, robbery the high degree of engine development achieved by the Wright Aeromarine Corp.

The Proposed Air Regulations

Regulations to be Discussed at Meetings of Department of Commerce in October.

THIS following tentative draft of regulations for the licensing of pilots and aircraft of the United States has been proposed by the Department of Commerce in collaboration with the Army Air Corps and the Naval Air Service.

AIR REGULATIONS
Circular One
REGULATIONS

For the pleasure of *Bona repudians*

Chapter Two
CERTIFICATION OF AIRCRAFT

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she already is used to a lifestyle in one state and is more comfortable there than in the business in that state assigned to the other state if she believes the interests which it would create in her for exhibition purposes or for the purpose of sale of personal or property, and as it relates to business for exhibition purposes or for the carriage there of personal or property.

3. **NONRESIDENTS LIVING OFF THE LAND.**
The ownership of domestic shell, by population—points per acre of shell as at the time of collection. The inventory must from time to time be checked to determine the correctness of the statement of inventories claimed under this subsection. (See § 100.) It shall be unlawful for any person to sell or offer to sell, or to cause to be sold or offered to be sold, any shellfish collected or taken by him, except to the holder of a valid permit or to a licensee of the Bureau of Fish and Game.

Any person who violates any provision of sections 141 or 142, or both, shall be subject to a civil penalty of \$100.
142.3

4. **APPLICATION FOR REINVESTIGATION AND REISSUE OF PERMIT.**
Any person who holds a valid permit issued under this section may apply for its reissue at any time during the period of validity of the original permit.

other ways, has a tendency of heightening and aggravating. A copy of the application is shown in the appendix. If the attorney is

(b) Description of power plant installations with illustrations also given.

- (1) Description of structure. Design, loading and surface, channel width dimensions or dimensioned sketches of main observational points and instruments as an essential input for accurate processing. We also request that the author supply a brief description of the technique used which it might be relevant to understand. If the experiment is older than a reasonable amount of time, it may be ideal if justification of the observations can be given in the title of the analysis or in the introduction.

16. **AIRPORTS AND TALLHOUSES.** The aeronautic requirements for airports and tallhouses will be prescribed by special regulations of the Secretary of Transportation.

17. **CHANGES IN OR REVISIONS OF REQUIREMENTS FOR AERONAUTICAL**

- 11 CLASSIFICATION OF SOILS INFLUENCED BY HUMAN ACTIVITIES
The following is a summary of the treatment of alluvium:
 (A) The structural strength of strong, diffuse soil surfaces. Increase and reduce
 (B) Fertilized, manured, and treated agricultural soils.

Four year average
residence 440 hours/annum.

- (1) Function.
 (2) Relative oil viscosity.
 (3) Pour temperature and gelling.

STRUCTURAL STEREOEQUIVALENCE

(4) Characteristics. To determine structural strength requirements of polymers should be classified according to full leaf or groups as follows:

A PREDICTION REALIZED



The New Curtiss "FALCON"

DURING the past several months, the first group of Curtiss "Falcons" to be delivered to the Army have been undergoing service tests in the hands of Air Corps pilots. As was foreseen when the "Falcons" were first placed in the Observation Competition at McCook Field, this new observation airplane has rapidly gained favor with the flying personnel, who have found it much faster and more maneuverable than the present service type.

Powered by either the Curtiss D-12 or the Liberty motor; excellent from a maintenance standpoint; with a truly remarkable performance, the "Fokker" fulfills all advance indications of being the finest observation type in service today - a worthy "big brother" to the Curtiss "Hawk", the standard service pursuit plane of the U. S. Service.

FIRST - SECOND - FOURTH - FIFTH - in the *Liberty Engine Builders' Race* for observation airplanes at the Philadelphia National Air Races.

THE CURTISS AEROPLANE
OFFICES
GARDEN CITY, N.Y.

Curtiss & MOTOR COMPANY, INC.
FACTORIES
Glendale, N.Y. and Buffalo, N.Y.

(2) Miles from nearest and best landing place. The miles from nearest and best landing place, and the land routes for each condition, in which ground shall be as follows:

(C)

Distance

Lateral Distance

From nearest and best landing place.

To nearest and best landing place.

In miles and kilometers.

Miles

Kilometers

(E) Duration and fuel capacity statement. We find the quantity of gasoline required for the duration of the flight, in which case, shall be indicated in minutes.

(F)

Duration

Fuel required

in minutes by App. E

miles

kilometers

(G) Landing strength. The aircraft shall be designed so that it can land on any surface and at any point of the site, provided that the aircraft does not exceed the maximum speed required for landing.

(H)

Strength

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In so far as the author can ascertain, no records of the names or titles of the writers of the poems which he brought and the illustrations which he had in mind have been preserved. It is possible that some of them were amateur artists, who did not consider it necessary to record their names.

Consolidated Airplanes Wear Well

Quality is first in their design and manufacture
Up-keep, ordinarily a serious problem is almost nil



Figure 5

170

Only American manufacturers specializing in training airplanes
Five years continuous development on one basic design.
Safest training and sportsmen's airplanes ever flown.

Contractors to United States Army and Navy

CONSOLIDATED AIRCRAFT CORPORATION
Buffalo, New York

- 4. REQUIREMENTS OF AIRLINE MECHANIC.** To be certified as an Airline Mechanic, the candidate must have the following general qualifications:
- (A) A knowledge of internal combustion engines and general aircraft maintenance, with particular reference to gasoline, compression ignition, and electrical powerplants.
 - (B) A knowledge of chemical elements related to airplane fuel.
 - (C) An ability to compute, design, repair, construct and assemble aircraft structures.

- 5. QUALIFICATIONS OF AIRPLANE MECHANIC.** To be certified as an Airplane Mechanic, the candidate must have the following general qualifications:
- (A) A knowledge of:
 1. The principles of flight;
 2. The theory of aircraft stability and control;
 3. Strengths and properties of materials in airplane construction;
 4. An ability to disassemble, repair, construct and assemble airplane structures.

- 6. EXAMINATIONS FOR AIRLINE CERTIFICATES.** Practical and theoretical examinations will be given to candidates for airline certificates. Candidates will be required to pass both practical and theoretical examinations in order to receive a certificate at the end of the course.

- 7. EXAMINATIONS FOR AIRPLANE CERTIFICATES.** Practical and theoretical examinations will be given to candidates for airplane certificates. Candidates will be required to pass both practical and theoretical examinations in order to receive a certificate at the end of the course.

- 8. PLACEMENT TEST AND GRADUATION CERTIFICATE.** Practical and theoretical examinations will be given to candidates following completion of the course. Those who have passed the examination will receive a certificate prepared by the examining officer. The certificate will state:

- (A) Name and address of employer;
- (B) Name and address of employer;
- (C) Name and address of employer;
- (D) Name and address of employer;
- (E) Name and address of employer;
- (F) Name and address of employer;
- (G) Name and address of employer;
- (H) Name and address of employer;
- (I) Name and address of employer;
- (J) Name and address of employer;
- (K) Name and address of employer;
- (L) Name and address of employer;
- (M) Name and address of employer;
- (N) Name and address of employer;
- (O) Name and address of employer;
- (P) Name and address of employer;
- (Q) Name and address of employer;
- (R) Name and address of employer;
- (S) Name and address of employer;
- (T) Name and address of employer;
- (U) Name and address of employer;
- (V) Name and address of employer;
- (W) Name and address of employer;
- (X) Name and address of employer;
- (Y) Name and address of employer;
- (Z) Name and address of employer.

- 9. PLACEMENT TEST AND GRADUATION CERTIFICATE.** To be certified as an Airplane Mechanic, the candidate must have the following general qualifications:

- 10. EXAMINATIONS FOR AIRLINE CERTIFICATES.** Practical and theoretical examinations will be given to candidates for airline certificates. Candidates will be required to pass both practical and theoretical examinations in order to receive a certificate at the end of the course.

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- 12. PLACEMENT TEST AND GRADUATION CERTIFICATE.** To be certified as an Airplane Mechanic, the candidate must have the following general qualifications:

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- 14. EXAMINATIONS FOR AIRLINE CERTIFICATES.** Practical and theoretical examinations will be given to candidates for airline certificates. Candidates will be required to pass both practical and theoretical examinations in order to receive a certificate at the end of the course.

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- 22. PLACEMENT TEST AND GRADUATION CERTIFICATE.** Practical and theoretical examinations will be given to candidates for airplane certificates. Candidates will be required to pass both practical and theoretical examinations in order to receive a certificate at the end of the course.

not less than 30 days prior to July 1, 1937, will be considered to have been received or sent post or mail service as of the date of the mailing or delivery of the application. Applications for certification of the period from July 1, 1937, until January 1, 1938, will be considered to have been received or sent post or mail service as of the date of the mailing or delivery of the application. Applications for certification of the period from January 1, 1938, until January 1, 1939, will be considered to have been received or sent post or mail service as of the date of the mailing or delivery of the application.

CLASSIFICATION OF AIR TRANSPORTATION FACILITIES

LAW. The Secretary of Commerce shall have authority—
To issue regulations for the operation of facilities which shall be the property of the United States or in their custody for such time as they may be held;

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BOEING AIRPLANE COMPANY

Manufacturers

of

*Military and Commercial
Aircraft*

Seattle, Washington

Boeing Airplane Company
Seattle, Washington



The Star in the Sky

Whether on the wings of a mail plane, a bomber, a naval submarine or a plane in a commercial carrier, like the one shown at The Glazier, L. Martin Company, Seattle, that is most significant for the passengers and planes, plus engineering, maintenance, planning and construction, come along to witness the efficiency of the new aircraft parts supplied by the company.

POPULAR WRITERS are fond of comparing the airplane with the automobile and prophesying parallel developments. In one vital characteristic, however, there must always be a point of contrast. In its factors of safety the plane must always represent the greater responsibility to its makers. Margin established on a gasoline-and-hope basis have no place in flying. Experimenting should be monopolized by the maker—and left to his passengers. As one man expressed it, "there are no crossroad garages a thousand feet up."

With the primary facts of flying established and mastered, the task of the engineer and manufacturer is radically changed. The goal is now maximum dependability. The study, the research, the experiment is today centered on the perfection of detail.

In this second stage of progress, the Glenn L. Martin organization is re-creating the same vision, the same pioneering research and the same creative capacity that enabled it to maintain its leadership throughout the first seventeen years of its contributions to the art of aviation. Its shape, its laboratories and its flying field continue to be the center of unceasing success.



THE GLENN J. MARTIN COMPANY

Bridgers of Quality Automobiles since 1916
CHEVROLET

CERTIFICATE OF CREDITABILITY AND VALIDITY OF CERTIFICATES

- 1. LAW OF CREDIBILITY** The law of credits may be applicable—specific for the issuance of certificates and for the suspension and revocation of registrations, licenses, and aircraft certificates, and such other regulations as may be issued by the National Defense Aviation Commission. The Secretary of Commerce is authorized to issue such laws and to determine the functions vested in him under the act. Where no specific law or regulation applies, the appropriate or similar laws of a written agency with the authority of Congress shall be applied.
- (a) The investigation of the envelope pressures, while showing the general description of pressure satisfactorily, is practically useless in the determination of total tonnage carried down to the bottom.
- (b) It is estimated that the pressure set up by a bomb is larger than those obtained in measurement.

A copy of this report may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

Vansky Aircraft Company Booklet

- Answers has received from the Vansky Aircraft Co., Florida, Fla., a copy of a forty page booklet entitled "Pioneers in the Air." The cover is in three colors and numerous types of plates are illustrated. The booklet contains interesting short articles aimed to bring home to the public the advantages of flying.

- The booklet is published by the Vansky Co., which has found in most creditable place of aviation educational interests. Other manufacturers who hope to benefit by flying activities might well follow the example of Press, III, in bringing the advantages of flight to the attention of their own clients in the extensive and effective way.

Gorrell Studies Commercial Flying

- Jameson has been made of the appointment of E. Gorrell, vice-president at the Studebaker Corp. of America, Indianapolis, Ind., as a member of a special committee of the Chamber of Commerce of the United States, whose headquarters are in Washington, D.C., for the purpose of making a study of the aeronautics situation with a view to increasing the development of civil and commercial aviation.

- 3. QUADRATIC EXPANSION COEFFICIENT** The cause of ruptured aircraft fuel tanks apparently became to the Secretary of Commerce a matter of considerable interest in the early part of 1946.
- 4. AIRCRAFT REPORTS** AIR reports in which machined aircraft of the United States are detailed and illustrated, as reported by the National Defense Aviation Commission, are available in which a copy of each is shown in the respective aircraft in which it was used. These reports are available in the Bureau of Standards in the Treasury of Government. An order report sheet is available.

- 5. REPORTS AFTER RECEIVED BY REPORTERS** AIR reports have been made on aircraft originally designed for land use in a variety of configurations. These reports are available in the Bureau of Standards in the Treasury of Government. An order report sheet is available.

- REFLECTIVE TIME OF REVOLUTIONS**
- 6. TIME OF REVOLUTION** The time of revolution that will effect the rotation of the earth, or of the sun, etc., in the case of these revolutions may be obtained upon request made to the Secretary of Commerce, Washington, D. C.

Pressure Distribution on C-7 Airship

- An investigation made by the National Advisory Committee for Aeronautics on the request of the Bureau of Aeronautics, Navy Dept., for the purpose of determining the pressure distribution over a "C" type airship in flight, is the subject of N.A.C. Report 222, prepared by J. W. Conner Jr. and S. J. DePrimo. The investigation was conducted in two parts, (a) tests on the wall surfaces in which the pressure of 201 psi. was measured, and (b) tests on the overall surface of the airship, with total loads equivalent to an airship in nearly closed flight conditions as possible, so that the results could be compared and the pressure distributions over the sides studied.

- The method of testing consisted of measuring the pressure by means of surface loads on the desired points connected to the airship's rigid longitudinal frame. The pressure reading of all the pressures were obtained by photographing the manometers.

- The results as presented in this report are mainly in tabular form and may be briefly summarized as follows:

- (1) The maximum local pressure encountered on a tail surface was 7.5 lb./sq. ft.



E. B. Gorrell

Mr. Gorrell is one of the early fliers in the United States, taking up flying in the year 1924. He was a flier during the Mexican Peasant Expedition, which resulted from Villa's raid on the United States in 1919.

During the World War he was the aeronautical engineer for the U.S. Army Signal Corps, and was later Chief of Staff of the Air Forces. He represented America in the years 1913, 1918 and 1929, in several hundred international conferences or conventions, and was a member of the committee representing twenty-three nations, that drew up the international convention report on aeronautics investigation.

The Voice of The Sky

- At the National Air Races at MacDill Field, Photo-duplex, the greatest innovation of the year in aeronautics was presented to the public, for the first time.

A singing and talking airplane, flew at 3000 to 3500 feet sending four voices and music, which could be heard at great distances, without the use of any radio, resulting in any other aerial sound system. The last voice does not affect.

Operations at the National Air Races had been organized and planned at the new form of entertainment. The attraction of listening to the first aerial concert ever given, made a deep impression on the crowd.

The demonstration was given by the Photo-Speeker Corporation of Philadelphia, and marked the first aerial and public test of "The Voice of the Sky" by the Photo-Speeker organization. Never before had there been an aerial performance for such demonstration. Never before had there been an aerial performance that has been so successful.

Charles Lawrence, president of the Wright Aeronautical Corporation is president of the new company.

Through the assistance of Mr. Lawrence and with the assistance of Charles Townsend Ludington, President of the B.R.C. Corporation of America and Harold E. Parsons, President of the Pioneer Aviation Company of Philadelphia, and Capt. Howard H. Davis of Kansas City, Mo., development of the voice of the sky application has proceeded rapidly. The voice of the sky can be seen, heard and rendered of form as desired in clear, well-modulated tones, very suitable and every note being as clearly projected as to be heard distinctly by these notes.

"The Voice of the Sky" is almost silent. For the first time in history the human voice and other sounds can be so powerfully amplified and the purity of tone so well preserved that normal and abnormal sounds can be transmitted and projected throughout from a two-engine plane at flight level at altitudes ranging from one thousand feet to a mile high.

The apparatus required to operate "The Voice of the Sky" was especially constructed. Relatively new solutions of electrical energy, new mechanisms and novel methods electrical devices are built in the ingenious Photo-Speeker assembly. The Photo-Speeker apparatus is mounted in a Stinson B-29 which is equipped with Liberty engines. The appearance of the plane is that of a standard B-29, approximately half a ton. In addition to the pilot and mechanic, two persons are required to operate the Photo-Speeker.

The first official demonstration of "The Voice of the Sky" to the public was made with Capt. R. W. Mackie at the controls, George W. McCloskey at the control board and Capt. C. B. Collier at the stick, at price.

The invention of the Photo-Speeker apparatus, Bernard Koenig, J. M. Coburn, George W. McCloskey and B. W. Mackie, are all former Army aviators. McCloskey and Mackie started working on the amplifying apparatus several years ago. They started working on the apparatus and started the firm of Koenig Field, Texas, with their first demonstration. Coming from behind the clouds singing "The Boogie" they broke into view, introducing themselves and announcing their desire to the Army offices below. Upon landing they were besieged with questions and wondering looks expressed with the amazement of everyone on the field.

At about the same time, Koenig and Coburn were making their improved test demonstration before a selected audience at MacDill City, Fla., where was located E. H. Holtz, then president of the American Advertising Federation. The result of their demonstration was to demonstrate that later wide spreading of the International Convention of Advertising Clubs at Philadelphia in June, Mr. Holtz took occasion to bring the writer to the attention of Charles Townsend Ludington of Philadelphia, with the result that through Mayor H. D. Davis of Kansas City, Mo., who was instrumental in bringing the Koenig and Coburn City re-

unions together, the new organization was formed, uniting Mayor Lawrence, Ludington and Parsons, and the combined efforts of the invention and with the aid of several technical experts of national note, reconstructed and rebuilt the apparatus, increased its power, clarity and scope and brought it to such perfection that today it is turned a new wonder of the world.

Conceived from the sky, songs, poems and other instrumental whistlers, operatic ensembles, etc., once being presented to the public, "The Voice of the Sky" by the Photo-Speeker organization. Never before has there been an aerial performance for such demonstration. Never before has there been an aerial performance that has been so successful.

Plans are being developed by the Photo-Speeker Corporation to place several multi-engined planes into service, equipped with photo-speeker apparatus. These planes will be flown to represent different centers of the country and make speeches, make announcements, present information and problems that have never been presented elsewhere.

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Mr. Lawrence, President of the Photo-Speeker Corporation, advises that all manufacturing and serial operation of the company will be derived from the greater office of the Captain R. W. Mackie, Allerton Flying Photo-Speeker Demonstration. He gives full license to the Photo-Speeker Corporation to use his name and fame to help sell the Photo-Speeker apparatus rapidly. "The Voice of the Sky" can be seen, heard and rendered of form as desired in clear, well-modulated tones, very suitable and every note being as clearly projected as to be heard distinctly by these notes.

"The Voice of the Sky" is almost silent. For the first time in history the human voice and other sounds can be so powerfully amplified and the purity of tone so well preserved that normal and abnormal sounds can be transmitted and projected throughout from a two-engine plane at flight level at altitudes ranging from one thousand feet to a mile high.

The advertising value of the photo-speeker device must, undoubtedly be very great and it may be imagined that possibilities will be opened in this direction. There is little doubt that it will form a stern competitor of the already existing forms of aerial advertising.

Weather Service to Civil Flying

Twenty-one new pilot balloon stations will be established along the civil aeronautics of the Weather Bureau of the Department of Agriculture in order to aid navigation.

The establishment of these stations was provided for in the deficiency bill just passed by Congress.

The pilot balloons will which will be sent up along the air routes give indications of the air currents and provide information whereby the air pilot can know what the weather conditions will be when he goes to sea or to land.

If a pilot is in doubt at 2 o'clock for a transoceanic flight, a second forecast made in 5 or 6 hours of little value to him. Past experience has shown that he needs an indication at 14.45 p. m. so as to conditions then prevailing, and a prediction based upon those conditions for the next few hours.

This means, of course, that observations will not be taken at 14.45 p. m. at 15.00 sending an message, but at varying times depending upon the time of day and the season. This observation will be required of surface and low altitude winds, such as windshifts, drift winds, thermals and other atmospheric phenomena. Wind direction and velocity and height of clouds will be required.

The stations will be at follows: Chicago, Cleveland, Salt Lake City, Cincinnati, Boston, New York, Duluth, Minneapolis, Kansas City, Denver, Los Angeles, San Francisco, Seattle, Portland, Detroit, Toledo, Miami, Atlanta, Birmingham, Greenville, Oklahoma City, Cincinnati.

The first 10 will probably be in operation within a month or two, and the others, depending on the success of the Weather Bureau in securing suitable equipment, it is hoped will be in operation by November. Eight of these stations are located along the transcontinental line, the remainder on the coastal lines.

Side Slips

By ROBERT R. COOKSON
Editorial Report of The Associated Press Staff, Inc., San Diego

Well, Sir, I had the firemen finally started at the National Air Races and it was very good. That is, the races were good, but the place where they were held was called "Model Fiasco" and they must have had the part with the race track as that part goes in great detail. They were taken all over the field, one after another, and the last one just before the race was over, the men were forced to take a long walk during the full measure. They did have lots of trouble though, with the drivers from the cars stopping their heat off their backs before they could get it into its water. The field being set accounted for one of the safest affairs during any day, when one of the drivers took a pole position, being towed to the Barber for a pit stop, and the car was so far behind the others that he expected to be eliminated, but managed to hang on until the complete participation of the cars had fortunately the drivers and drivers said. I was relieved in not selecting a good racing for the drivers, though, and it drifted a couple of miles downstream during one day.

There was a lot of talk about it, I guess there, but I did not recognize any of the drivers, and the drivers themselves did not seem to know whether there was an air race or not, whether it was a car or a seaplane, and was pretty well worn out. From the reports, I heard the winner of the field was nothing compared to some of these Philadelphia birds, and I saw my son of the boys looked like they had been shot down for being a sparing partner. Most of them did not seem to know whether there was an air race or not, whether it was a car or a seaplane, and the drivers themselves did not seem to know whether there was an air race or not, whether it was a car or a seaplane, and the results of the race could be studied in their home.

You could tell you who was in Philadelphia even if you had not seen the status signs, when the sunshower fell during a couple times each day in between their announcements. You remember a few months ago there was some criticism about holding the races over on sand? Well, I think that was a good idea, and also, the drivers had to leave the course later than the by the Japanese Bombs, however, over in Jersey, but the only sleep over I saw were the out-of-town birds who had been on their planes.

Great speed was attained in the free-for-all pursuit meet, of which Hartmann Cudliff was enthused the winner. His plane made 150-160 miles, while we had a great surprise in me, as I expected to see a little faster, but I did not. However, I did not see any of the drivers who were obtained for the race as most of the drivers seemed to be at the last-day start all afternoon. Finally that was one more anomaly, though, and he seemed to be out each night something like the seller of a baseball girls' match.

Another criticism for the show was the amount and length of the Los Angeles and out of town to the Army and Navy if you'll be so kind that the Mechanics started to keep the ship on the ground did not "leave the situation well in hand" most of the time. Just as the ship was going to go down in one of the profiles for the third time, they had to hold off all the way back to Elizabeth. Mrs. Eshleman was also on board, and she was the queen of the day, but you can see how she had difficulties, was on the field when she refused to leave the ground without a life preserver.

One of Mr. Shoshany's flying birds was present and gave an exhibition of headspinning from the air. This did not bother me much, though as you couldn't hear any more than you can hear at the movies, except, an account of all the things around meeting persons between their tests and the boys selling admission of today's show, with some as many as forty players.

In conclusion, and will give to one year, I trust about this was one of the best air races ever I have attended. It is hoped that this frank admission on my part will spur the managers of next year's show to still greater efforts.

Tony Fly
The Imperial Aviator

**PROPOSALS FOR
NAVY TRAINING PLANES**

1. To endeavor to encourage the development of aviation and to improve the efficiency of naval aeronautical materials, as contemplated by Act of Congress, Public No. 446, approved July 2, 1926, the submission of bids in having invited for training planes, convertible land or seaplane type, suitable for primary and secondary training, in association with designs submitted by the bidder competitively.

2. Each design will be accompanied by a graduated scale of prices for which the designer is willing to sell the aircraft, ranging from \$10,000 to \$100,000. (1) those (\$1), less (\$10), twenty-five (\$25), fifty (\$50), seventy-five (\$75) and one hundred (\$100), also a price for which the design is worth as its parts will be sold to the Government.

3. All bids with accompanying designs will be submitted to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., and same be placed in the mail not later than December 10, 1936. No bids or designs mailed thereafter will be considered. Reference giving detailed information to the dimensions and construction of the airplane and to the various features and characteristics to be developed, either specifically or by descriptive measures of merit, will be supplied upon application to the

BUREAU OF SUPPLIES AND ACCOUNTS
Navy Department, Washington, D. C.
CHARLES MURKIN
Paymaster-General of the Navy

Alexander Eaglerock

PERFORMANCE WITH ECONOMY

is a

MONEY MAKER

C. E. Steele, Eaglerock Owner, writes:

From the time I left Denver, August 12 and August 27, I took in a little over \$110,000, averaging about four hours flying per day.

**WE SELL THE EAGLEROCK ON A
TIME PAYMENT PLAN**
draw your own conclusions

RETURNS OF PLANS OR MODELS

EAGLEROCK DEALERS
Eastern California—Long Beach, California, Los Angeles, Western California—San Francisco, Pasadena, California
Midwest—Chicago, Milwaukee, St. Louis, Indianapolis
Northeast—Boston, New York, Newark, Philadelphia, Atlantic City, New Haven, Hartford, Providence, New Bedford, New Haven, Connecticut—J. J. Charles, Stamford, Conn.
CASH PRICE—\$2415—DENVER

**AIRPORTS AND AIRWAYS****Portland, Ore.**

The Brooks Flying Service, of Portland, Ore., which was incorporated in May, to do general air service business, has leased a field on the East bank of the Willamette River, near the end of the Broadway Bridge and East of Swan Island. The field is approximately 1,000 x 1,000 ft.

Some time ago a house building a 180 ft. and being made suitable for either land or water planes. The Port Commission, which is doing the work, hopes to make this one of the finest airports in the West. The present plans call for an air strip of the Willamette of 3,000 ft. wide, with perhaps a 50 acre lake, a 500 ft. long causeway with the present 100 ft. dam, and a 300 ft. East and West road by 1000 ft. wide.

The Brooks Flying Service has undertaken the distribution of the Miss planes for the Northwest and have a circuit moving to be used on air taxi service and passenger carrying on the field. The two service will operate at all points within the Pacific Northwest. The new airport will be opened to the public on Sept. 25, 1936, with the assistance of Tex Rankin, and a large crew has registered for fall work.

Alaska Mapping Near Completion

The Defense Department received a radio message on Sept. 12 from the Bureau of Land Management, which reported progress which has been continuous in Alaska by the Navy Department in cooperation with the Interior Department, is nearing successful completion. The Department

reported that this communication, sent to the Geological Survey of the Department, stated that the Navy crews will leave June 1st, 1937 for Arctic photographing areas along the coast and seeking fossils in about ten days. The communica-

tion said, "The Navy crews have photographed large areas on northwestern Alaska, including many of the important islands of the Alexander Archipelago. Valuable results are reported to have been secured for the various Government surveys regarding the topography of this portion of Alaska."

Air Service Upsetments

The largest number of the 105 newly appointed second lieutenants who were recently called into service from the Army ranks and from civil life have been assigned to the Air Corps, with the infantry second, the Department of War announced on Sept. 10. The full list of the official assignments is as follows:

The 105 new Army second lieutenants appointed will include 50 from the Regular Army and cavalry will be assigned to members of the Cavalry, 20 to the Infantry, 10 to the Artillery, 10 to the Field Artillery, 10 to Coast Artillery Corps, 12 to Cavalry, 10 Corps of Engineers, by Signal Corps, 1

Alaska, Ga.

Pastorius General has designated Sept. 18 as the date when service will be inaugurated on the extension to Alaska of the Miami-Jacksonville contract on air route. A brief has been dispatched to Major Fred Chambers, president of

Light your Airport



With commercial aviation demanding 24-hour-a-day operation of airports, it is necessary that you light yours for night flying. A G-E Beacon will guide fliers to your airport at night, and G-E Boundary and Field Lights will make landing by night as easy and safe as by day.

For information address the G-E Aviation Lighting Specialist at Schenectady or at your local G-E Sales Office.

GENERAL ELECTRIC
GENERAL ELECTRIC COMPANY, SCHENECTADY, N.Y. 100 SALES OFFICES IN PRINCIPAL CITIES

The Florida Airways Corporation, continuing on the route, advancing him of the date and returning a stop at Miami, Georgia, Miami was not on the original schedule.

On August 1, 1926, under a contract with the railroads that take from Miami to Atlanta, but with an earlier start on the southern leg. No passengers are made with other railroads.

The schedule for the entire route, an air mail distance of 600 miles, each for a plane to leave Atlanta daily at 7 A. M., Miami, 8:30 A. M.; 2:30 P. M., Tampa, 10:45 A. M.; 1:45 P. M., St. Petersburg, 10:45 A. M.; Jacksonville, 10:45 A. M.; Northbound planes will leave Miami at 7 A. M., Fort Myers, 8:30 A. M., Tampa, 10:45 A. M., Jacksonville, 12:45 P. M.; Miami, 10:45 P. M., and arrival at Atlanta at 6:45 P. M.

Orchard, Roth.

Pilot L. D. Rogers had an unusual experience Sunday morning when he was unable to land his plane. He left Atlanta at Douglas Field, with the New York trans-Atlantic flight at 12:45 A. M. on August 22nd. There was a severe electrical storm approaching from the northwest at the time of departure. He was well aware of this and was concerned another before reaching Valencia. Weather was poor with over fifty feet visibility, and after flying over Valencia, he landed his plane with water and sand when took a chance on leaving the ship over because of field being soft he decided to return to Douglas.

The two electrical storms had not been of much trouble to him but, after flying for several hours he was becoming worried about the weather. After the second storm, he could see that it would blow him to Madrid. However, he did manage to land heading toward Atlanta, which he attempted to follow until he came to the Bradenton branch, which would lead him to St. Louis. While following the road he evidently went through a wire, as he scraped the left wing right on the ground and managed to break the legs and tilt the remaining wing with sand and water.

Upon finding the wing broken he pulled the ship up into the low clouds and again became lost, but after a short time located the Bradenton tanks and came into contact, landing at 10:45 A. M. on August 23rd.

Roger's statement for his speed was reporting 150 miles per hour at the time the wing light touched the ground. This is considered a very severe escape. Had he lost eight seconds closer to the ground the wing would have completely and at the rate of speed at which he was traveling it would have probably been one of those cases in which he would never have recovered.

Cook, M.

Postmaster notes of air travel is the record claimed by Mrs. Edward G. Bern, wife of the manager of the Bern Air Service, operating on the North Kansas City Field, and Mrs. Lucy French, wife of one of the pilots. They announced their journeys last winter and spring on the advertising campaign conducted by the Bern Air Service for the Chamber of Commerce.

Jake's Airport

By Jake Bern.

Vincent Davies, of St. Louis, together with his machine, landed on our field at Sanders' on Sept. 4 to run on, unwillingly enough to go up and land up. He left for Lincoln, Neb., 7:15, in the several days. Davies is flying a 150 H.P. Hispano-Suiza.

On Friday noon Capt. Chet Jacobson in various planes arrived from Mount, N. D., and landed on our field with his Garber's car in tow. In taking off the field, his engine stopped, after he had gone about 25 ft. He tried to overshoot over a fence, without the help of the engine, the right wheel struck the fence, breaking the propeller and slightly denting the left wing. So our car rejoiced. He rolled his plane up to our garage and in a few days had his on the air again.

On Saturday, Sept. 6, 1926, our local boy George Davis, who was working as a Cungle pilot in Harris' car for the Comair

Jake's Airport is going to be a very popular landing place, and we invite all airplane to land on our field and make themselves at home. We are on the map as North Dakota.

Baker Lorch has the 6500 ft. of his Comair thus work is done in thorough housecleaning.

Henry C. Martin Field Dedicated

The Royal Club at the Philadelphia Navy Yard, which has been in existence since 1873, and Captain Henry C. Martin, commanding officer of the club, dedicated Sept. 17, The program was opened with short speeches by Rear Admiral T. F. Morrison, admiral and eagles on Captain Martin's way to a position in foreign were delivered by Blue Admiral T. J. Hayes, Blue Admiral W. J. McRae, Captain W. G. Woosriff and Captain W. H. Hartfield.

Admiral Scammon of the Navy, Theodore Roosevelt, colonel of the First U. S. Cavalry, and many other prominent men attended. There is no ceremony of ribbon cutting or any recognition with messages for Army, Navy, Air Service or various ports of the country and the Army, Navy, Commerce and Post Office Departments at Washington.

An American Seaplane Reserve prepared to leave the field in a group planned to London, Great Britain, took off and headed for Liverpool, Eng., on Aug. 26, and with much pleasure from the exhausts, spelled the name "Martin Flying Patrol." Numerous other planes had started also and a variety of flowers fell to the field, covering the movement, which has been dedicated to Captain Martin.

A flying circus was then held, the planes managing to make contact with a fence post, where they had carried off the field, being demolished in a hand-to-hand struggle.

Captain Martin was one of the Navy's first fliers. He began his aviation activities in 1902, ran a seaplane at the Vera Cruz in 1914 and in 1915 piloted the first seaplane launched from a catapult aboard ship. He was Assistant Chief of the Bureau of Aeronautics at the time of his death.

Atlanta-to-Miami Air Service inaugurated

On Aug. 15 the first air connection between two southern states was completed when two planes of the Florida Airways brought passengers of south and northeast coast to Atlanta and Miami.

This is the aftermath of the first meeting on their way obtained "Miss Atlanta" at Douglas Field by Miss Elizabeth Barnes, Misses Holmes, a pioneer airport advocate, who acted as comrade of passengers presented Misses Lang, Hess and Glasson, the latter vice president of the Florida Airways, who made the round flight, and G. E. Eliot, who presided at the trip.

Major General George H. Nagy, a prominent dispenser of Atlanta, Major Paul C. Shultz, Captain George M. Hoyt and Lieutenant Colonel W. B. Hartfield gave brief addresses of welcome.

Thirty planes took off after the opening. They comprised ten Army biplane and various commercial planes. The same planes answered for the spectators, while the commercial planes took off for passengers for flights.

After the celebration the Chamber of Commerce of Atlanta recommended the naming of the Andley Field.

Berlin, Germany

Lufthansa, the company that operates the 25 airplanes in Germany, increased its passenger carrying capacity to 60,000. Its rate is 100 marks for a passenger, which is equivalent to about the same cost of a transatlantic ocean liner.

Captain Meissner was one of the Navy's first fliers. He began his aviation activities in 1902, ran a seaplane at the Vera Cruz in 1914 and in 1915 piloted the first seaplane launched from a catapult aboard ship. He was Assistant Chief of the Bureau of Aeronautics at the time of his death.

With a new type of Albatross airplane, equipped with two motors, 260 h.p. each, and eight leather passenger seats,

"ANNOUNCING"

The New Woodson Mail and Sport Plane.

Desired
ride with
single seat
need

Adjustable
horizontal and
vertical fin



Steel tube
frame and
steel tail
group

Excellent
visibility.

Woodson Sport fitted with Wright 24

Carries a pay load of 800 pounds and seats 5 people.
A change can be made to any of the following motor in 45 minutes:
Salmson, Hispano, Curtiss, K-6, C-6, OX-5 or Liberty size. The power plant comes off as one unit, with carburetor, oil tank, etc., attached to the main

With Salmson	With Hispano	With Curtiss
Rotary speed —	100 R.P.M.	100 R.P.M.
Rotary speed —	115 R.P.M.	115 R.P.M.
For 100 ft.	100 ft.	100 ft.
From Wright 24	10 ft. 9 in.	10 ft. 9 in.
Horizontal stabilizer	10 ft. 9 in.	10 ft. 9 in.
In curve —	10 ft. 9 in.	10 ft. 9 in.
For 100 ft.	100 ft.	100 ft.

WOODSON ENGINEERING COMPANY
BRYAN, OHIO

NITRATE DOPE

NEW
PRODUCTION
IMMEDIATE
SHIPMENT

Contractors to U.S. Army and Navy

VAN SCHACK 8808 CHEMICAL WORKS
224 WISCONSIN AVE., CHICAGO, ILL.



Royal Flying Corps students taking instruction

THE NATIONAL AERONAUTIC ASSOCIATION

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Army Orders

Frost Least, Donald E. Gandy, Air Corps, Detroit, to New York City, returning Dec. 22 via government transportation for Philippines Islands.

Frost Least, Morris T. McCormick, Air Corps, Brooks Field, to San Francisco, sailing an transport Jan. 18 for Philippines Islands.

Frost Least, Air Corps, William J. Henley, Fairfield and David G. Linton, McCook Field, to New York City, sailing Dec. 22 via government transportation, for the Philippines Islands.

Frost Least, Endicott M. Peppel, Air Corps, Cranston Field, to New York City, sailing an transport Dec. 2 for the Canal Zone.

Major George Harry Board, Air Corps, placed on return list at Fort Riley, Kansas, Air Corps Res., Dayton, to return duty Washington, returning to inactive status Dec. 2.

See, Least, Benjamin Dawson, Army, Air Corps Res., Dayton, to active duty Cranston Field, returning to inactive status Dec. 2.

Sgt. Least, Deputy Engineer Kinney, Air Corps Res., Toledo, Ohio, to active duty Cranston Field, returning to inactive status Dec. 2.

Mr. Jacob S. Field, Air Corps, Wadsworth, in Wright Field, to Fort Sam Houston.

See, Least, James Andrew Bruns, Air Corps Res., Lake City, Fla., to active duty Brooks Field, returning to inactive status Dec. 2.

Capt. Harold Eastman Works, Air Corps Res., New York City, to active duty Langley Field, returning to inactive status Oct. 18.

Capt. Henry Nelson Moore, Air Corps Res., New York City, to active duty Washington, returning to inactive status Sept. 27.

See, Least, James Wilson Andrew, Air Corps Res., Philadelphia, and Louis Ernest Moore, Air Corps Res., Atlanta, Ga., to active duty Brooks Field, returning to inactive status October 30.

Mr. Donald G. Brand, Gen. Staff, Air Corps, returned from active as member of Gen. Staff Corps, Mac. Dept. Gen. Staff, and will report to Ass't. Sec'y of War for duty.

Capt. Harry Canfield Stearns, Air Corps Res., Wadsworth, to active duty Scott Field, writing in much shorter status Sept. 28.

See Least, Edward C. Ranch, Air Corps, Scott Field, to active duty Langley Field, returning to inactive status.

Capt. Charles Young Curtis appointed Second Lieutenant Air Corps, Sturz Hotel Field, Chicago, Illinois; McCarty Air Corps, Mitchell Field, Chas. Arthur Howell, 5th Air Corps, Field, Marion H. Berney, Jameson, St. Louis; Watson Royal, Brooks Field, Bernard Alexander Bridges, Langley Field, George Frederick Carlson, Cleveland, Ohio; Harry Franklin, Davis, Texas; George E. Clegg, Fort Monmouth, New Jersey; Fred Davis, Cranford Field, Wallace Strubling, Langley Field, Cleo Homan Stevenson, Belvoir Field, Harrison, Tex.; Elmer Davis, Loveland, Colo.; Dan F. Englehardt, Major, Tex.; Fletcher Willard, Los Angeles, Calif.; Lee Goldsmith, Major, Eugene Allen Gilmore, Collected, Calif.; John Edie Gould, Kelly Field, Alvin Lee Hersey, Brooks Field, One River, Arkansas; Jameson, Oklahoma; John E. Hart, Fort Meade, Maryland; Jameson, Washington, Edward Preston Hudson, Brooks Field, Henry Lee Hedges, San Francisco, California; Sherman, Jerome, Boston, Post Aviator School, Stratton, Wash.; Letendre Stratton, Jamestown, Roth Field, General Groves Johnson, Charlotte, N. C.; Frank Dean Klein, Rodriguez, New Mexico; Robert Kite, Ft. Calhoun, Nebraska; Leavenworth, Kansas; Howard Caudill, LaFayette, Indiana; Orville Miller, Louisville, Louisville, Ky.; George Harley Lucas, Portland, Ore.; Leroy Marion, Bellvue Field, Fort Lewis, Spokane, Wash.; Clark W. Parsons, McCook Field, Fort Carson, Colorado; Clegg, Carl, Cleo Homan Stevenson, Oklahoma; George Miller Lester, Romeo de Muro, Harvey, Louisiana; Fred Lenz, Marion, Bellvue Field, Fort Carson, Colorado; Clark, W. Parsons, McCook Field, Fort Carson, Colorado; George Harry Board, Air Corps Res., Dayton, Ohio; Major Frank J. Murphy, Dayton, Ohio; Lt. Col. George E. Clegg, Fort Monmouth, New Jersey; Tolson, Indianapolis, Ind.; Edward C. Ranch, Wadsworth, Chicago, Ill.; Lt. Col. George E. Clegg, Fort Monmouth, New Jersey; Tolson, Indianapolis, Ind.; Edward C. Ranch, Wadsworth, Chicago, Ill.

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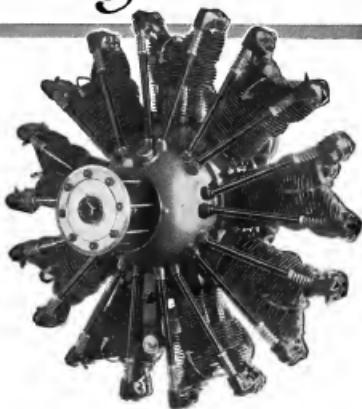
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